

Notice of Allowability

Application No.

09/898,808

Examiner

Christopher R. Magee

Applicant(s)

DANIEL ET AL.

Art Unit

2653

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the reply filed 11/02/2004.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☒ The drawings filed on 02 July 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Response to Amendment

1. Linking claim 15 is allowed. Since the restriction requirement between inventions is, as set forth in the Office action mailed on 05/16/2004, was conditioned on the nonallowance of the linking claim(s), **the restriction requirement as to the linked inventions is hereby withdrawn.** Claim 15, previously withdrawn from consideration as a result of the restriction requirement, is hereby rejoined and fully examined for patentability under 37 CFR 1.104. In view of the withdrawal of the restriction requirement as to the linked inventions, applicant(s) are advised that if any claim(s) depending from or including all the limitations of the allowable linking claim(s) be presented in a continuation or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

2. The reply filed 11/02/2004 was applied to the following effect: All relevant objections and rejections are withdrawn as being satisfied.

Reasons for Allowance

3. Claims 1-16 are allowed.

The following is an examiner's statement of reasons for allowance:

This application is for a MULTILAYER HOUSING STRUCTURE WITH TUNED LAYERS USING HYPOTHETICAL MODELING.

- **Claim 1** specifies a method which requires:

“determining a resonant frequency of a housing layer of a housing member, the housing layer adapted to support a plurality of rigid damping layers interposed with a plurality of visco-elastic damping layers; ascertaining a loss factor profile in relation to the resonant frequency for each of a plurality of hypothetical models for the housing structure, each model comprising first, second and third theoretical layers wherein at least one of said theoretical layers comprising multiple damping layers;”

- **Claim 15** specifies a multilayer housing structure which requires:

“a plurality of rigid damping layers interposed with a plurality of visco-elastic damping layers in a laminate stack adjacent the planar housing layer, wherein a final characteristic of each of said rigid damping layer and said visco-elastic damping layers is determined by steps for determining a final characteristic of each of said rigid and visco-elastic damping layers.”

Baker et al. (US 5,214,549) teaches an acoustically damped disc drive assembly having a housing 12, the disc drive assembly having internally disposed components generating acoustic vibrations. The housing 12 has a cover 50, comprising a plurality of plate members 52, 54 (i.e., first and second rigid damping layers, respectively) with a visco-elastic damping layer 56 disposed between the pairs of plate members (col. 4, lines 31-35; Figure 3).

First, Baker '549 does not exemplify a second visco-elastic damping layer affixed to the first rigid damping layer and the second rigid damping layer affixed to the second visco-elastic damping layer.

Further, Baker '549 does not disclose a method of determining a resonant frequency of the housing layer, ascertaining a loss factor profile and selecting a final characteristic of each of the rigid damping layers and visco-elastic damping layers in relation to the ascertained loss factor profiles.

Pechersky (US 5,520,052) teaches a non-destructive method and apparatus for determining the structural integrity of materials and components by combining laser vibrometry with damping analysis techniques to determine the damping loss factor of a material or component (col. 2, lines 30-35). Structural integrity analysis typically makes use of the correlation between the resonant frequency of an object and its structural quality (col. 2, lines 64-66).

Both Baker '549 and Pechersky '052 do not teach or suggest ascertaining a loss factor in relation to the resonant frequency for each of a plurality of hypothetical models for the housing structure, each model comprising first, second and third theoretical layers wherein at least one of said theoretical layers comprises multiple damping layers as set forth in claim 1.

Additionally, both Baker '549 and Pechersky '052 do not teach or suggest a final characteristic of each of said rigid damping layer and said visco-elastic damping layers is determined by steps for determining a final characteristic of each of said rigid and visco-elastic damping layers as claimed in claim 15.

Therefore, these features, in combination with other features of claims 1 and 15, are not anticipated by, nor made obvious over, the closest prior art of record of Baker '549 and/or Pechersky '052.

- **Claim 8** specifies a multilayer housing structure which requires:

“a second visco-elastic damping layer affixed to the first rigid damping layer and the second rigid damping layer affixed to the second visco-elastic damping layer” and “the first and second visco-elastic damping layers and the first and second rigid damping layers have respective thicknesses selected to attenuate excitation energy transmitted to the planar housing layer by the excitation source.”

Neither Baker ‘549 or Pechersky ‘052 do not exemplify a second visco-elastic damping layer affixed to the first rigid damping layer and the second rigid damping layer affixed to the second visco-elastic damping layer. Plus, the first and second visco-elastic damping layers and the first and second rigid damping layers have respective thicknesses selected to attenuate excitation energy transmitted to the planar housing layer by the excitation source as set forth in claim 8.

Therefore, these features, in combination with other features of claim 8, is not anticipated by, nor made obvious over, the closest prior art of record of Baker ‘549 and/or Pechersky ‘052.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

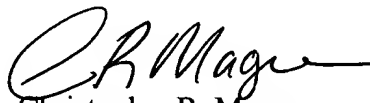
Conclusion


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 15, 2005


Christopher R. Magee
Patent Examiner
Art Unit 2653


GEORGE J. LETSCHER
PRIMARY EXAMINER